



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,157	12/07/2001	Anthony J. Cachat	01AB055	6606
7590	09/09/2005		EXAMINER	
ALEXANDER M. GERASIMOW, ESQ. Rockwell Automation (Allen-Bradley Co., Inc.) 1201 South Second Street Milwaukee, WI 53204			HARTMAN JR, RONALD D	
		ART UNIT	PAPER NUMBER	
		2121		

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,157	CACHAT ET AL.	
	Examiner	Art Unit	
	Ronald D Hartman Jr.	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 22 June 2005.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-3,7-15 and 19-26 is/are rejected.

7) Claim(s) 4-6 and 16-18 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 07 December 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101 (maintained)

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-26 are rejected as being directed towards non-statutory subject matter.

Specifically claims 1-26 are not in the technological arts since the claims appear to simply be claiming a computer program, *per se*, and the recited "wire" is not viewed to be a physical structure, and therefore the claims are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 102 (maintained)

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 7-9, 13, 19-21 and 25-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Park et al., U.S. Patent No. 6,173,208 B1.

As per claims 1, 13 and 25-26, Park et al. teaches a controller configuration system and method for generating an execution order for a function block diagram having a plurality of function blocks, wherein the function blocks each have one or more inputs, the method comprising:

- determining input data availability for the inputs of the plurality of function blocks (e.g. C3 L20-25; C3 L35-41; C5 L3-36);

- generating an execution order for the function blocks diagram according to the input data availability for the inputs of the plurality of function blocks in the function block diagram (e.g. C4 L66 - C5 L23); and
- generating a control routine from the function block diagram according to the execution order (e.g. C4 L50-55; C5 L47-51).

As per claim 25, Park et al. adequately discloses a compiler component adapted to generate a control routine from the function block diagram according to the execution order (e.g. this feature has been interpreted to correspond to Park et al.'s disclosing of converting a function block diagram to structured control code; C4 L48-53).

As per claims 7 and 19, Park et al. teaches assigning an execution number to each function block in the function block diagram (e.g. C4 L66 – C5 L23).

As per claims 8 and 20, an association between an input of a first function block and a second function block is inherent to a function block diagram.

Also, determining whether data is available for the first function block if an execution order number has been assigned to the second function block is a capability that the disclosed system of Park et al. inherently possesses the ability to perform since Park et al. teaches execution numbers being assigned based on the users placement of function block within the diagram, and that the number is then changed to an execution number which is representative of the actual order of operation with regards to the connected function blocks.

Therefore, with regards to claims 8 and 20, an execution number of a second function block, and data from the second function block are inherently used when determining the execution order of the function blocks, and therefore the aforementioned features and or limitations are adequately contemplated by the disclosed system and method as disclosed by Park et al.

As per claims 9 and 21, a feature wherein data availability is assumed for a first input of a first function block if the first input is associated with an input reference is a capability that the disclosed system and method of Park et al. inherently possesses the ability to perform since clearly if a function block is the first function block, there must be input data to this function block in order for the function block to perform any type of function what-so-ever, and this input data corresponds to the claimed "input reference" and therefore these features and of functions are believed to be adequately contemplated by the disclosure of Park et al. as they are representative of features that park et al. inherently possesses the ability to perform, and this would have been known to one of ordinary skill in the art at the time the invention was made.

Claim Rejections - 35 USC § 103 (maintained)

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-3, 10-12, 14-15 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., as applied to claims 1 and 13 above, in further view of Greta et al., U.S. Patent No. 5,971,581.

As per claims 2 and 14, Park et al. does not specifically teach the determination as to whether a feedback loop or wire is being utilized in conjunction with the function block diagram, although Park et al. does acknowledge the use of control loops (e.g. C1 L30-35).

Gretta et al. teaches the use of control loops within the confines of creating a network configuration through placement of function blocks, wherein a schedule for the execution of the function blocks may be altered as per the needs of the system or the desires of a user (e.g. Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the functions of feedback function blocks, as disclosed by Gretta et al., for the purpose of allowing the timing and scheduling of complex systems to occur in an optimized manner, and this would have been obvious to one of ordinary skill in the art at the time the invention was made.

As per claims 3 and 15, a feature wherein data, in reference to a feedback wire, is assumed to be available in relation to function blocks of a function block diagram is a feature that the combined system of Park et al. (Park in view of Gretta) inherently possesses the capability of performing since this data must be present in order for block execution timing and block execution scheduling to occur in an optimized manner, that is, all inputs to each functions block must be carefully analyzed and accounted for so that the execution order as well as the execution timing of the loops occurs in a optimized manner, and these features and or limitations would have been known to one of ordinary skill in the art at the time the invention was made.

As per claims 10 and 22, Park et al. teaches assigning an execution number to each function block in the function block diagram (e.g. C4 L66 – C5 L23).

As per claims 11 and 23, an association between an input of a first function block and a second function block is inherent to a function block diagram.

Also, determining whether data is available for the first function block if an execution order number has been assigned to the second function block is a capability that the disclosed system of Park et al. inherently possesses the ability to perform since Park et al. teaches execution numbers being assigned based on the users placement of function block within the diagram, and that the number is then changed to an execution number which is representative of the actual order of operation with regards to the connected function blocks.

Therefore, with regards to claims 11 and 23, an execution number of a second function block, and data from the second function block are inherently used when

determining the execution order of the function blocks, and therefore the aforementioned features and or limitations are adequately contemplated by the disclosed system and method as disclosed by Park et al.

As per claims 12 and 24, a feature wherein an execution number is associated with a function block in the event that the inputs for that function block are known is a feature that the combined system of Park et al. (Park et al. in view of Gretta et al.) inherently possesses the capability of performing since clearly the inputs to a function block must be known in order to determine the actual execution order for the function blocks, and therefore, it can be reasonably inferred that data must be available, with regards to inputs to a function block, in order for any function block to receive an execution order number since without the data being known, there would be no way of accurately determining the actual operation order of the function blocks, and this would have been known to one of ordinary skill in the art at the time the invention was made.

Allowable Subject Matter (maintained)

6. Claims 4-6 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As per claims 4-6 and 16-18, specifically dependent claims 4 and 16, the prior art of record fails to teach or adequately suggest a method (claim 4) and system (claim 16) for generating an execution order for a function block diagram, wherein when an unspecified feedback loop is determined to exist in the function block diagram, generating an error in response to this determination, in combination with the other claimed features and or limitations as claimed.

Response to Arguments

7. The applicant has argued that the outstanding 35 U.S.C. 101 rejections with respect to pending claims 1-26 is incorrect and should be withdrawn. The applicant's arguments have been considered but are not persuasive since the tangibility

requirement, contrary to the applicants assertions, is not currently met under 35 U.S.C. 101.

As there appears to be some confusion with respect to this fact, the examiner would like to point out that the claimed invention may be performed by a person simply using pencil and paper as the only two actual steps being performed, (1) determining input data availability for the inputs of the function blocks and (2) generating an execution order based on the determination, both may be accomplished manually, without requiring computer implementation or function, and therefore it is believed that the claims are not proper under 35 U.S.C. 101 and the tangibility requirement is not adequately met and therefore the claims are properly rejected under 35 U.S.C. 101.

Furthermore, the applicant also has chosen to argue the outstanding rejections under 35 U.S.C. 102(e) as asserting that Park et al. does not disclose or adequately suggest determining data availability before determining function block execution order. The examiner respectfully disagrees with the applicant and the applicant's attention is directed towards C5 L33-55, in which these steps are disclosed. It is noted that the mere determination of whether data is available as an input is sufficient to anticipate the claimed invention, and this is clearly the case since Park et al discloses in C5 L33-55 the notion of creating a library for predetermined inputs and outputs for each function block, and Park et al also goes on to mention that some function blocks, specifically input function blocks should appear first, after conversion, since these function blocks do not have any inputs themselves and therefore start the whole process . The examiner does not agree with the applicant's assertions as to Park et al being directed towards manually re-arranging the identification numbers, with respect to the execution order of function blocks, since clearly Park et al. teaches a software program performing this function, and therefore, the steps are not manually performed, and this is all adequately disclosed in the aforementioned citation.

That being said, since the claims have not been amended to overcome the outstanding rejections, and since all arguments have been adequately addressed

herein, this action is being made FINAL and a repeated office action which was previously mailed on 3/22/2005, is being reiterated herein, above, for the applicants convenience.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald D. Hartman Jr. whose telephone number is (571) 272-3684. The examiner can normally be reached on Mon.-Fri., 11:00 - 8:30 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ronald D Hartman Jr.
Patent Examiner
Art Unit 2121
x RDH

August 31, 2005



Anthony Knight
Supervisory Patent Examiner
Group 3600